Straw-Delivery-Mechanism to provide automatic straw delivery from within a metal can

DESCRIPTION

Cross Reference To Related Applications

[Para 1] 6,491,184

[Para 2] 4,923,084

1. Field of Invention

[Para 3] The Invention relates generally to beverage containers using a bend-down-tongue to create an opening in the lid and specifically to an improved method to supply a more hygienic drinking environment and a more enjoyable drinking experience, than drinking directly from the container.

2. Description of the prior Art

[Para 4] Numerous different Straw-delivery-mechanisms had been developed in prior art for metal beverage cans. All had flaws and none ever went into mass production until today.

3. Discussion of new straw-delivery-mechanism

[Para 5] My new invention (the straw-delivery-mechanism for automatic straw delivery from within the metal can here referred as "the new mechanism") covers many of those flaws and will overcome the shortcomings of prior art devices.

[Para 6]

- a) The new Mechanism is secure and cannot move or release the straw when the can is closed.
- b) The new Mechanism works reliable.
- c) The new Mechanism is easy produced.
- d) Already existing machinery can be used to produce the new mechanism.
- e) The new Mechanism is extremely low cost compared with prior Art devices.
- f) The new Mechanism can be made from the same material as the Lid is made from.
- g) The new Mechanism is easily mounted to the Lid.
- h) The new Mechanism is easy implemented into the container .
- i) The mounting procedures are more easily implemented into the canning/filling production lines.
- k) The contamination of the Aluminum container through the use of other types of materials is prevented and therefore the aluminum recycling process is not impaired.

Brief Description of Drawings

[Para 7] Fig: 1 shows from below the Straw-delivery-mechanism in the can in its locked position when the can is still closed.

[Para 8] Fig: 2 shows from below the Straw-delivery-mechanism in the can in its final position when the straw has been released.

[Para 9] Fig: 3 shows the Straw-delivery-mechanism looking down on the can in a sectional view from a 45 degree angle in its locked position when the can is still closed.

[Para 10] Fig: 4 shows the Straw-deliver-mechanism looking down on the can in a sectional view from a 45 degree angle in its final position when the straw has been released.

[Para 11] Fig: 5 shows the arm of the Straw-delivery-mechanism that holds the straw from a 45 degree top view.

Brief Description of Sequences

[Para 12] *Parts Involved*

- 1. Lid
- 2. Inner, lower Rim of Lid
- 3. Outer, upper Rim of Lid
- 4. Straw delivery Mechanism
- 5. Spring
- 6. Strawholding Arm
- 7. Strawholder
- 8. Corrugated part of Straw-holding-Arm
- 9. Release Arm
- 10. Lock on Release Arm
- 11. Rivet
- 12. Bend-down tongue in the orifice
- 13. Orifice
- 14. Tab
- 15. Straw
- 16. Can

[Para 13] When the can opens(12) the straw-delivery-mechanism is released, the spring will force the mechanism to turn and finally to deliver the straw.

Detailed Description

[Para 14] In three steps

The Straw

[Para 15] The Straw(15) is a common telescopic straw as produced for several uses out of any convenient material.

The Straw-delivery-mechanism

[Para 16] The Straw delivery mechanism(4) is fabricated from aluminum. The mechanism(4) carries the following components.

- a) A *Rivet*(11) with which the mechanism(4) on its turn point(11as well) is connected to the lid
- b) *The straw-holding arm*(6) has a improved spring effect through its corrugation(8). The straw-holder(7) lets the straw only move in one direction out of the holder.
- c) *The release Arm*(9) The tip of the release-arm(9) creates the lock(10) in conjunction with the inner rim(2).
- d) *The Spring*(5) supplies three forces
- 1) To turn the straw-delivery-mechanism(4)
- 2) To push the straw(15) on the arm(6) through the Orifice(13)
- 3) To press the release-arm(9) against the lid(1) and to lock the mechanism(4) against the inner rim(2)

The Straw-Holder (Fig: 5)

[Para 17] The straw-holder(7) has a serrated hole in which the straw is located. The serrated inside edge of the hole allows the hole to expand slightly to maintain a firm grip on the straw and to allow the straw to move only in one direction through the hole.

When the can is closed (Fig: 1 & Fig: 3)

[Para 18] The Spring(5) presses against the wall(16) of the can. The pressure ensures that the release-arm(9) stays in its locked position(10). The Straw hits the lid(Fig:3) and the strawholding arm(6) is bend downward.

When the can is being opened

[Para 19] The release arm(9) is unlocked and snaps over the inner rim(2) and starts sliding along the conical portion of the can-wall on top of the can(16). As the release-arm(9) is pushed down by the bend-down tongue(12) through the opening process, the entire mechanism(4) can turn being pushed by the spring(5), until the straw(15) reaches the opening(13) and the strawholding(6) arm can release the straw(15) to the outside.

When the can is open (Fig: 2 & Fig: 4)

[Para 20] The straw(15) appears at the orifice(13) and sticks out about 1 inch. The strawholding arm(6) is larger than the orifice(13) and cannot be pulled out of the can. The telescopic straw can be easily pulled out of the straw holder and used for drinking but not pushed back into the can. After use the straw can be easy completely removed from the can if wanted.

[Para 21] Several possible reasons exist for the complete removal of the straw:

- a) The consumer may like to drink without a straw.
- b) The consumer may want to drink the last remaining liquid.
- c) The straw may be made out of plastic, and should be removed before the can enters a recycling process